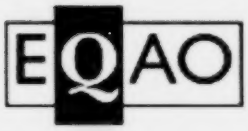

Education
Quality and
Accountability
Office

The Grade 3 and Grade 6 Assessments of Reading, Writing and Mathematics, 2001–2002

Report of Provincial Results

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Results at a Glance

Achievement Highlights

Grade 3

Overall Achievement at Level 3 and Above (Method 1[1])

	1997–1998	1998–1999	1999–2000	2000–2001	2001–2002
Reading	46%	45%	49%	49%	50%
Writing	49%	52%	52%	52%	55%
Mathematics	43%	56%	57%	61%	58%

Observations:

- In Grade 3, half the students achieved the provincial standard in reading (50%) and more than half achieved the provincial standard in writing (55%) and mathematics (58%).

Grade 6

Overall Achievement at Level 3 and Above (Method 1[1])

	1998–1999	1999–2000	2000–2001	2001–2002
Reading	48%	50%	55%	55%
Writing	48%	48%	53%	53%
Mathematics	46%	51%	54%	54%

Observations:

- In Grade 6, more than half the students achieved the provincial standard in reading (55%), writing (53%) and mathematics (54%).

[1] Refer to page 7 for a description of Method 1 and Method 2.

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Key Messages

- Grade 3 students continue to show slow but steady improvement in reading and writing over the past five years of the assessment.
- Following a significant improvement in achievement between the first and second year of the assessment, Grade 3 students' mathematics achievement has remained relatively stable.
- Following slow but steady improvements in achievement over the first three years of the assessment, the achievement of Grade 6 students in reading, writing and mathematics has remained stable.
- In Grade 3 and Grade 6 reading and writing, girls significantly outperformed boys.
- In Grade 3 and Grade 6 mathematics, the achievement of girls was slightly better than that of boys.

Key Recommendations

EQAO recommends

- that **school boards** carefully review their improvement plans in relation to the board data that they have accumulated over the past five years from the Grade 3 and Grade 6 provincial assessments and revise their improvement plans, using the *EQAO Guide to School and Board Improvement Planning, April 2002.*
- that **school boards** examine the assessment results from all of their schools and identify those that are improving, in order to identify factors that relate to improvement and that they share such information to develop improvement strategies board-wide.
- that **school boards and schools** analyze disaggregated as well as aggregated achievement and contextual data in planning for improvement, and identify strategies that target areas and groups in need of additional support and improvement.
- that **principals,** with support from boards and the Ministry of Education, provide teachers with opportunities for professional development in assessment literacy and, in particular, in using assessment data along with best practices to develop strategies for improvement.

The Grade 3 and Grade 6 Assessments of Reading, Writing and Mathematics, 2001–2002

Introduction

The Education Quality and Accountability Office (EQAO) conducts several province-wide assessments, among them the Grade 3 and Grade 6 Assessments of Reading, Writing and Mathematics. Both assessments are conducted annually and involve all Grade 3 and Grade 6 students in publicly funded schools in Ontario. The results of these assessments provide individual, school and school board data on student achievement at two key stages in elementary education. Parents receive an Individual Student Report that provides information on their child's achievement on the assessment. Schools and boards create their own reports, based on EQAO data, for distribution to parents and other stakeholders in the community. As well, EQAO publishes an annual *Provincial Report on Achievement* for education stakeholders and the public. Data from the assessments provide valuable information to support improvement planning at the school and board levels.

Assessment Content

The Grade 3 and Grade 6 assessments measure how well students have met the provincial expectations in *The Ontario Curriculum, Grades 1–8*. Each assessment covers the knowledge and skills in reading, writing and mathematics that students are expected to have acquired by the end of the grade being assessed. These assessments contain performance-based activities, requiring written responses, and multiple-choice questions. This combination of question types allows students to demonstrate both the depth and the scope of their learning and provides a variety of ways for students to demonstrate what they know and what they can do.

Reading

In the reading component of the assessment, students demonstrate their knowledge and skills by reading a variety of materials, including both fiction and non-fiction. This part of the assessment measures how well students use various reading strategies and conventions and how effectively they understand concepts, make inferences and connect ideas. The four reading categories outlined in the Grade 3 and Grade 6 curriculum and evaluated by the assessments are as follows:

- Reasoning: the student selects, describes, interprets and analyzes relevant information and ideas from the text to show understanding
- Communication: the student relates ideas from the text to personal knowledge and experiences and to other readings (Grade 3); the student explains an interpretation of the text, supporting it with evidence from the text and his/her own knowledge and experience (Grade 6)
- Organization of ideas: the student identifies and describes different organizational forms and characteristics of texts and uses this knowledge to aid understanding
- Application of language conventions: the student identifies and explains the use of appropriate language conventions (e.g., phonics, spelling, grammar, punctuation and style)

Writing

In the writing component of the assessment, students demonstrate their knowledge and skills by using various forms of writing and by writing for different purposes. This part of the assessment measures how well students use writing strategies and language conventions and how effectively they understand assigned tasks, organize ideas and communicate with the reader. During the assessment, students produce two pieces of written work. One piece models the writing process, while the other is an on-demand piece. The four writing categories outlined in the Grade 3 and Grade 6 curriculum and evaluated by the assessments are as follows:

- Reasoning: the student understands the purpose of the task, develops ideas and relates them to the purpose of the task and to each other
- Communication: the student uses appropriate writing techniques, (including vocabulary, imagery and sentence variety), uses an appropriate voice and writes for a specific audience
- Organization of ideas: the student shows evidence of a logical plan and/or focus and presents connected ideas (Grade 3); the student uses a logical sequence in sentences, paragraphs and overall organization and structure (Grade 6)
- Application of language conventions: the student applies language conventions correctly (spelling, grammar, punctuation, etc.)

Mathematics

In the mathematics component of the assessment, students demonstrate their knowledge and skills by solving problems, applying procedures and explaining how they have arrived at their answers. This part of the assessment also tests students' knowledge and skills within the five strands of mathematics: number sense and numeration, geometry and spatial sense, measurement, patterning and algebra, and data management and probability. The four mathematics categories outlined in the Grade 3 and Grade 6 curriculum and evaluated by the assessments are as follows:

- Problem solving: the student chooses and carries out appropriate strategies and applies them correctly
- Understanding of concepts: the student uses and explains required concepts, incorporating mathematical ideas and relationships
- Application of mathematical procedures: the student selects and accurately applies procedures (e.g., making a graph) and operations (e.g., adding and multiplying)
- Communication of required knowledge: the student justifies the reasonableness of solutions and provides clear explanations using appropriate mathematical terms and symbols

Participation

All Ontario Grade 3 and Grade 6 students in publicly funded schools are expected to participate in the assessments. Teachers and principals are expected, therefore, to make every effort to enable all students to participate in all aspects of the assessment in order to demonstrate the full extent of their learning. This may involve providing one or more permitted accommodations during the assessment. Accommodations must follow the policies of the Ministry of Education and EQAO to ensure the integrity of the assessments. The only students eligible for permitted accommodations are students with special needs or ESL students in the early stages of English-language acquisition. It is assumed that these students require accommodations for classroom assessment tasks throughout the school year.

Note: An Individual Education Plan (IEP) must be developed for those students identified as exceptional and/or receiving special education support in order for the students to be eligible for permitted accommodations during the provincial assessments. The accommodations are provided as identified in the students' IEPs in the year(s) in which they will participate in the assessments. As well, the accommodations must meet the criteria of those allowed by EQAO. An ESL student in the early stages of English-language acquisition may not necessarily have an IEP. Accommodations allowed by EQAO are

- additional time (to a maximum of twice the stated time for an independent activity),
- pacing prompts,
- verbatim scribing (only in reading and mathematics),
- a quiet workplace,
- specialized resources, including assistive devices,
- alternative media for hearing-impaired and visually impaired students and
- technology resources as indicated on the student's Individual Education Plan (IEP).

Schools are required to document any accommodations on the Student Information Form at the time of the assessment, and the accommodations are noted on the Individual Student Report when student results are sent to the schools.

In rare instances, a student may need to be exempted from participating in all or part of an assessment if the full range of permitted accommodations has been considered and it is determined that the student would still not be able to provide evidence of learning under these assessment conditions. Before granting an exemption, the principal must consult with the student's parents and teacher and obtain written parental consent.

Administration and Marking

The Grades 3 and 6 assessments are conducted annually in May. The assessments take place over five days for up to two-and-a-half hours each day. In both grades, students complete introductory activities with their classmates and then work independently to solve problems, write their responses and answer multiple-choice questions.

All teachers responsible for administering the assessments receive detailed guidelines in the Teacher's Daily Plans. In addition, EQAO staff provide training to school board personnel who, in turn, train those responsible for administering the assessments at the school level. This process contributes to skills development and confidence building among those responsible for administering the assessments.

The Grades 3 and 6 Assessments of Reading, Writing and Mathematics, like all of EQAO's provincial initiatives, involve educators at every stage. Teachers and administrators from across the province participate in developing, field-testing and validating the assessment materials. In addition, the assessments are marked by educators representing all elementary grades. Marking provides teachers with valuable professional development in which to hone their skills in assessing student achievement. During the 2001–2002 marking session, about 90% of the nearly 2400 English- and French-language teachers involved reported that the experience would have a positive impact on their classroom practice and was a useful professional development experience. The comment of one marker summarized the opinion of many: "Great professional development! A great help and confidence builder in my teaching."

For each assessment, the constructed-response sections comprise approximately 80% of the assessment, while the multiple-choice sections comprise approximately 20% of the assessment. The constructed-response sections in reading and writing are organized and marked according to the four curriculum categories outlined previously. In mathematics, the constructed responses are marked according to the five mathematics strands and the four categories. The multiple-choice components are scored mechanically.

EQAO reports on student achievement in reading, writing and mathematics using a four-level scale. This scale is based on *The Ontario Curriculum, Grades 1–8* and sets Level 3 as the provincial standard. The markers are trained to assess student written work according to these four levels of achievement. Students may also be designated "NE1" (the student has provided enough information to score but does not demonstrate enough evidence of knowledge and understanding to be assigned Level 1), "IIS" (the student's work provides insufficient information to be assigned a level of achievement), "exempt" (the student was formally exempted from participating in the assessment) and "No Data" (EQAO received no completed assessment booklets).

In the Achievement Results section of this report, data are provided according to the achievement levels and the various designations described above. Calculations are made in two ways, which EQAO terms Method 1 and Method 2.

Method 1

In Method 1 all data are reported. Method 1 expresses the number of students achieving at each level as a percentage of all of the students in the grade, including students who were exempted and those who took part in the assessment but did not produce enough work to be scored. Method 1 is EQAO's primary method of reporting, because publicly funded schools are accountable for the achievement and progress of all students. Schools and school boards are required to use this method to ensure consistency of reporting across the province.

Method 2

Method 2 is an alternate way of presenting the data. Method 2 expresses the distribution of student results as a percentage of those students who actually took part in the assessment and produced at least some work that could be scored. Students who were exempt or for whom we have no performance data are excluded. Method 2 highlights the results achieved by students who have at least some scorable work.

Generating Achievement Results

EQAO reports overall levels of achievement for each subject — reading, writing and mathematics — as well as more detailed results, according to the categories and strands described earlier.

The overall results for each subject are derived by combining the results from the constructed-response section with those from the multiple-choice section. For reading and writing, the overall result is generated from five sources of data (the four categories of the written work and one multiple-choice section). For mathematics, it is derived from ten sources (the four categories and five strands of the written work and the one multiple-choice section).

Quality Assurance

Quality assurance procedures help to ensure that EQAO's assessments produce valid and reliable data. These procedures are embedded in each stage of the assessment cycle, including design and development, field testing, administration, marking and reporting. EQAO uses quality assurance information collected during and at the end of each assessment cycle to review and improve assessment materials, policies and procedures. The following information provides a brief summary of the main quality assurance measures of the Grades 3 and 6 assessments.

Design and Development

In the design and development phase, a technical committee of assessment experts provides advice to ensure the assessments are consistent with EQAO values and conform to sound assessment practices. EQAO personnel train teams of educators from schools and boards across the province and continually monitor and support their work. A validation team, composed of practising teachers and assessment experts, examines test materials for bias and appropriateness. In addition, the English and French development teams work collaboratively to ensure that the assessments are comparable between the two languages.

Field Testing

The Grade 3 and Grade 6 assessment materials are field-tested prior to their administration in May. Each year the Grade 3 materials are field-tested in 30 Grade 4 classrooms across the province; the Grade 6 materials are field-tested in 30 Grade 7 classrooms. Altogether, approximately 600 Grade 4 and 600 Grade 7 students and their teachers are involved. During the field test, teachers are asked to complete a questionnaire regarding the appropriateness of all of the assessment materials, as well as the reaction of the students to them. Following field-test marking, EQAO reviews all the information generated by the field test and compiles the final assessment materials, which are subjected to further scrutiny by a validation committee before being finally reviewed and approved by a technical committee.

Administration

In the administration phase, EQAO staff monitor the training of teachers to administer the assessments. As well, EQAO quality assurance monitors make on-site visits to approximately 10% of the participating classrooms to observe and collect data on how accurately and consistently teachers and principals follow the procedures outlined in the *Administration Guide for Teachers and Principals*. EQAO staff and data analysts are trained to detect irregularities during the administration of the assessments. EQAO staff, together with school board and school officials,

investigate all reported or suspected irregularities. EQAO also makes follow-up visits to schools where irregularities were identified during the administration of the previous year's assessments.

Marking

During marking, various types of reliability checks are conducted. Questionnaires are administered to markers to gather feedback on the training process. Each morning, before marking begins, markers score orientation booklets to ensure marking procedures and standards are applied consistently from day to day. Each afternoon, all markers score a reliability booklet, and the results are analyzed to evaluate the degree of consistency and reliability of the marking. In addition, calibration booklets (random selections of students' booklets) are re-marked each day, and the results of the markings are then compared to generate statistics on marking reliability.

Data Management

EQAO has data management procedures in place to ensure that data are recorded and are correctly attributed to individual students, schools and school boards. EQAO has also developed a formal process for reviewing individual students' results when requests or appeals are received.

Year-to-Year Comparisons

With the publication of this report, educators, parents, policy-makers and members of the public have five years of Grade 3 achievement data and four years of Grade 6 achievement data based on the current curriculum expectations. They also have five years of contextual data from the questionnaires that students, teachers and principals complete during the assessments.

Through an examination of these data, it is possible to identify some important trends over time. However, it is important to emphasize that some comparisons are valid and meaningful while others should be avoided. For instance, the overall levels of achievement are comparable from year to year. The method EQAO uses to calculate the overall levels of achievement in reading, writing and mathematics allows the calculation of these scores to be reported on the same scale from one year to the next.

On the other hand, modifications and refinements in the design and marking of the performance-based components of the assessments create potential sources of variation in results from year to year for the category and strand scores. This means that the category and strand scores are not directly comparable from year to year. However, parents and teachers are encouraged to examine students' category and strand scores, using test booklets and the samples of student work provided by EQAO. This will help them to determine students' strengths and weaknesses in the categories and strands in comparison to all students who wrote the test. It is useful for school boards to analyze their category and strand results in terms of the provincial results, and schools are encouraged to analyze their results in terms of both the provincial and school board results to gain an understanding of strengths and weaknesses in their students' achievement relative to the larger population.

The multiple-choice component of the assessment includes overlapping questions from year to year. These questions are not subject to change. The analysis of student responses to these questions from the previous year indicates whether there are any changes in student performance. This information, along with the distribution of scores from the previous years, provides a mechanism for measuring year-to-year consistency and a basis for adjusting results where necessary to ensure it.

For further information about the various aspects of the Grades 3 and 6 assessments, please refer to the EQAO Web site (www.eqao.com).

Participation

This section of the report provides information about the students who participated in the 2001–2002 Grade 3 and Grade 6 Assessments of Reading, Writing and Mathematics.

Reading

	Eligible Population	Percentage No Data	Percentage Exempted	Percentage Fully Participating
All Students:				
Grade 3	136 888	<1%	6%	94%
Grade 6	145 351	<1%	4%	96%
Grade 3				
Gender				
Female	66 112	<1%	4%	96%
Male	70 212	<1%	7%	93%
Student Status				
ESL	7 617	<1%	25%	75%
Special Needs	22 999	<1%	27%	73%
Grade 6				
Gender				
Female	70 309	<1%	3%	97%
Male	73 975	<1%	5%	95%
Student Status				
ESL	5 208	1%	28%	71%
Special Needs	23 322	<1%	20%	80%

	Eligible Population	Percentage No Data	Percentage Exempted	Percentage Fully Participating
All Students:				
Grade 3	136 886	<1%	5%	95%
Grade 6	145 351	<1%	4%	96%
Grade 3				
Gender				
Female	66 112	<1%	4%	96%
Male	70 210	<1%	7%	93%
Student Status				
ESL	7 617	1%	23%	76%
Special Needs	22 997	<1%	24%	76%
Grade 6				
Gender				
Female	70 308	<1%	3%	97%
Male	73 975	<1%	5%	95%
Student Status				
ESL	5 208	1%	28%	71%
Special Needs	23 321	<1%	19%	81%

	Eligible Population	Percentage No Data	Percentage Exempted	Percentage Fully Participating
All Students:				
Grade 3	139 725	<1%	5%	95%
Grade 6	145 351	<1%	4%	96%
Grade 3				
Gender				
Female	67 705	<1%	4%	96%
Male	71 426	<1%	6%	94%
Student Status				
ESL	7 625	1%	20%	79%
Special Needs	23 158	<1%	22%	78%
Grade 6				
Gender				
Female	70 309	<1%	3%	97%
Male	73 975	<1%	5%	95%
Student Status				
ESL	5 208	1%	23%	76%
Special Needs	23 322	<1%	20%	80%

Observations: Reading, Writing and Mathematics

Grade 3:

- 48% of the Grade 3 students were female; 51% were male (1% were not specified).
- 5% of Grade 3 were ESL.
- 17% of Grade 3 students were identified as having special needs.
- 20% or more ESL students and students with special needs were exempted from reading, writing or mathematics.

Grade 6:

- 48% of the Grade 6 students were female; 51% were male (1% were not specified).
- 4% of Grade 6 were ESL.
- 16% of Grade 6 students were identified as having special needs.
- 19% or more ESL students and students with special needs were exempted from reading, writing or mathematics.

Students Who Received One or More Accommodation in Reading

	1997–1998	1998–1999	1999–2000	2000–2001	2001–2002
Grade 3	22%	25%	25%	18%	11%
Grade 6	n/a	24%	17%	12%	10%

Students Who Received One or More Accommodation in Writing

	1997–1998	1998–1999	1999–2000	2000–2001	2001–2002
Grade 3	22%	29%	29%	19%	10%
Grade 6	n/a	34%	17%	15%	10%

Students Who Received One or More Accommodation in Mathematics

	1997–1998	1998–1999	1999–2000	2000–2001	2001–2002
Grade 3	22%	38%	31%	22%	12%
Grade 6	n/a	28%	21%	17%	10%

Observations:

- The percentage of students who received accommodations this year has decreased significantly.

Achievement Results

This section of the report provides a summary of the provincial results from the 2001–2002 Grades 3 and 6 assessments. The reading, writing and mathematics results for both grades are presented together to provide a sense of the patterns in each subject that extend across the two grades. The results from these two assessments, including both the achievement and questionnaire data, provide a comprehensive view of student achievement in Ontario.

Overall Level of Achievement in Reading — Grade 3

	# =	Exempt	No Data	NEIS	NE1	Level 1	Level 2	Level 3	Level 4
Method 1	136 888	6%	<1%	7%	<1%	9%	27%	45%	5%
Method 2	128 407	N/A	N/A	8%	<1%	9%	29%	48%	5%

Overall Level of Achievement in Reading — Grade 6

	# =	Exempt	No Data	NEIS	NE1	Level 1	Level 2	Level 3	Level 4
Method 1	145 351	4%	<1%	6%	<1%	6%	28%	47%	9%
Method 2	138 841	N/A	N/A	6%	<1%	7%	29%	49%	9%

Overall Level of Achievement in Writing — Grade 3

	# =	Exempt	No Data	NEIS	NE1	Level 1	Level 2	Level 3	Level 4
Method 1	136 886	5%	<1%	3%	<1%	2%	33%	48%	8%
Method 2	129 204	N/A	N/A	4%	<1%	2%	35%	50%	8%

Overall Level of Achievement in Writing — Grade 6

	# =	Exempt	No Data	NEIS	NE1	Level 1	Level 2	Level 3	Level 4
Method 1	145 351	4%	<1%	3%	<1%	6%	33%	43%	10%
Method 2	138 967	N/A	N/A	4%	<1%	6%	34%	45%	10%

Overall Level of Achievement in Mathematics — Grade 3

	# =	Exempt	No Data	NEIS	NE1	Level 1	Level 2	Level 3	Level 4
Method 1	139 725	5%	<1%	5%	<1%	5%	27%	48%	10%
Method 2	132 870	N/A	N/A	6%	<1%	5%	28%	51%	10%

Overall Level of Achievement in Mathematics — Grade 6

	# =	Exempt	No Data	NEIS	NE1	Level 1	Level 2	Level 3	Level 4
Method 1	145 351	4%	<1%	5%	<1%	8%	28%	41%	13%
Method 2	139 137	N/A	N/A	5%	<1%	9%	30%	43%	13%

Year-to-Year Comparisons (Method 1)

Five-Year Trend in Grade 3 Reading

	Exempt	No Data	NEIS	NE1	Level 1	Level 2	Level 3	Level 4
1997–1998	5%	1%	8%		6%	34%	42%	4%
1998–1999	6%	1%	2%		12%	34%	40%	5%
1999–2000	8%	<1%	5%	<1%	8%	30%	43%	6%
2000–2001	6%	1%	7%	<1%	9%	28%	45%	5%
2001–2002	6%	<1%	7%	<1%	9%	27%	45%	5%

Four-Year Trend in Grade 6 Reading

	Exempt	No Data	NEIS	NE1	Level 1	Level 2	Level 3	Level 4
1998–1999	4%	1%	3%		9%	35%	40%	8%
1999–2000	6%	<1%	5%	0%	8%	31%	42%	8%
2000–2001	4%	<1%	3%	<1%	8%	30%	47%	8%
2001–2002	4%	<1%	6%	<1%	6%	28%	47%	9%

Five-Year Trend in Grade 3 Writing

	Exempt	No Data	NEIS	NE1	Level 1	Level 2	Level 3	Level 4
1997–1998	4%	1%	2%		5%	39%	42%	7%
1998–1999	5%	1%	2%		3%	38%	46%	6%
1999–2000	7%	<1%	4%	0%	1%	36%	45%	7%
2000–2001	5%	1%	6%	0%	2%	34%	45%	7%
2001–2002	5%	<1%	3%	<1%	2%	33%	48%	8%

Four-Year Trend in Grade 6 Writing

	Exempt	No Data	NEIS	NE1	Level 1	Level 2	Level 3	Level 4
1998–1999	4%	1%	4%		9%	35%	37%	11%
1999–2000	6%	<1%	5%	0%	8%	34%	38%	10%
2000–2001	4%	<1%	5%	0%	7%	32%	43%	10%
2001–2002	4%	<1%	3%	<1%	6%	33%	43%	10%

Five-Year Trend in Grade 3 Mathematics

	Exempt	No Data	NEIS	NE1	Level 1	Level 2	Level 3	Level 4
1997–1998	4%	3%	4%		9%	37%	39%	4%
1998–1999	5%	1%	1%		8%	29%	46%	10%
1999–2000	6%	<1%	2%	0%	6%	28%	46%	11%
2000–2001	5%	1%	4%	0%	4%	26%	49%	11%
2001–2002	5%	<1%	5%	<1%	5%	27%	48%	10%

Four-Year Trend in Grade 6 Mathematics

	Exempt	No Data	NEIS	NE1	Level 1	Level 2	Level 3	Level 4
1998–1999	4%	1%	3%		12%	35%	35%	11%
1999–2000	6%	<1%	4%	0%	9%	30%	39%	12%
2000–2001	4%	<1%	3%	0%	9%	30%	42%	12%
2001–2002	4%	<1%	5%	<1%	8%	28%	41%	13%

Observations:

- Grade 3 students continue to show slow but steady improvement in reading and writing over the past five years of the assessment.
- Following a significant improvement in achievement between the first and second year of the assessment, Grade 3 students' mathematics achievement has remained relatively stable.
- Following slow but steady improvements in achievement over the first three years of the assessment, the achievement of Grade 6 students in reading, writing and mathematics has remained the same.

Detailed Reading Achievement by Category

Grade 3

Category	# =	Average Score	Maximum
Reasoning	124 783	9.6	20
Communication	125 719	9.8	20
Organization of Ideas	124 212	8.8	20
Application of Language Conventions	125 966	11.0	20

Grade 6

Category	# =	Average Score	Maximum
Reasoning	136 404	10.8	20
Communication	136 478	10.4	20
Organization of Ideas	138 066	10.5	20
Application of Language Conventions	136 523	10.2	20

Detailed Writing Achievement by Category

Grade 3

Category	# =	Average Score	Maximum
Reasoning	128 131	5.0	8
Communication	128 139	5.1	8
Organization of Ideas	128 137	5.1	8
Application of Language Conventions	128 145	5.2	8

Grade 6

Category	# =	Average Score	Maximum
Reasoning	137 403	4.9	8
Communication	137 551	5.0	8
Organization of Ideas	137 442	4.9	8
Application of Language Conventions	137 557	5.2	8

Detailed Mathematics Achievement by Category and Strand

Grade 3

Category	# =	Average Score	Maximum
Problem Solving	129 982	9.5	20
Understanding of Concepts	130 412	10.4	20
Application of Mathematical Procedures	131 611	11.3	20
Communication of Required Knowledge	131 230	9.1	20
Strand			
Number Sense and Numeration	130 624	13.5	24
Geometry and Spatial Sense	131 523	13.8	24
Measurement	130 850	12.4	24
Patterning and Algebra	131 047	14.3	24
Data Management and Probability	131 296	13.7	24

Grade 6

Category	# =	Average Score	Maximum
Problem Solving	137 285	10.1	20
Understanding of Concepts	137 972	11.6	20
Application of Mathematical Procedures	137 084	11.5	20
Communication of Required Knowledge	137 729	9.8	20
Strand			
Number Sense and Numeration	137 901	14.1	24
Geometry and Spatial Sense	136 870	13.7	24
Measurement	137 338	13.2	24
Patterning and Algebra	137 415	14.1	24
Data Management and Probability	137 727	13.5	24

Overall Achievement in Reading by Subgroup

Grade 3

		# =	Exempt	No Data	NEIS	NE 1	Level 1	Level 2	Level 3	Level 4
Gender	Boys	70 212	7%	<1%	8%	<1%	10%	29%	42%	4%
	Girls	66 112	4%	<1%	6%	<1%	8%	26%	49%	7%
Language	In ESL	7 617	25%	1%	6%	1%	15%	28%	22%	2%
	All Other Students	129 271	5%	<1%	7%	<1%	8%	27%	46%	5%
Special Needs	Special Needs	22 999	27%	<1%	11%	1%	19%	27%	14%	1%
	All Other Students	113 889	2%	<1%	6%	<1%	7%	28%	51%	6%

Grade 6

		# =	Exempt	No Data	NEIS	NE 1	Level 1	Level 2	Level 3	Level 4
Gender	Boys	73 975	5%	<1%	7%	<1%	8%	32%	42%	5%
	Girls	70 309	3%	<1%	4%	<1%	5%	24%	52%	12%
Language	In ESL	5 208	28%	1%	8%	1%	13%	26%	20%	2%
	All Other Students	140 143	3%	<1%	6%	<1%	6%	28%	48%	9%
Special Needs	Special Needs	23 322	20%	<1%	11%	1%	18%	35%	15%	1%
	All Other Students	122 029	1%	<1%	5%	<1%	4%	27%	53%	10%

Observations:

- In both Grade 3 and Grade 6, girls outperformed boys in reading.
- Nearly one-quarter of ESL students achieved the provincial standard in reading: Grade 3 (24%), Grade 6 (22%).
- Among students receiving special education, 15% of Grade 3 students and 16% of Grade 6 students achieved the provincial standard in reading.

Overall Achievement in Writing by Subgroups

Grade 3

		# =	Exempt	No Data	NEIS	NE 1	Level 1	Level 2	Level 3	Level 4
Gender	Boys	70 210	7%	<1%	4%	<1%	3%	39%	42%	5%
	Girls	66 112	4%	<1%	3%	<1%	1%	28%	53%	11%
Language	In ESL	7 617	23%	1%	4%	<1%	3%	39%	28%	2%
	All Other Students	129 269	4%	<1%	3%	<1%	2%	33%	49%	8%
Special Needs	Special Needs	22 997	24%	<1%	7%	1%	7%	47%	13%	<1%
	All Other Students	113 889	2%	<1%	3%	<1%	1%	31%	54%	9%

Grade 6

		# =	Exempt	No Data	NEIS	NE 1	Level 1	Level 2	Level 3	Level 4
Gender	Boys	73 975	5%	<1%	4%	<1%	9%	38%	38%	6%
	Girls	70 308	3%	<1%	3%	<1%	3%	27%	50%	14%
Language	In ESL	5 208	28%	1%	4%	<1%	13%	34%	19%	3%
	All Other Students	140 142	3%	<1%	3%	<1%	6%	33%	44%	10%
Special Needs	Special Needs	23 321	19%	<1%	6%	<1%	19%	42%	12%	1%
	All Other Students	122 029	1%	<1%	3%	<1%	4%	31%	49%	12%

Observations:

- In both Grade 3 and Grade 6, girls outperformed boys in writing.
- Among ESL students, 30% of Grade 3 students and 22% of Grade 6 achieved the provincial standard in writing.
- Among students receiving special education support, 13% of Grade 3 students and 13% of Grade 6 students achieved the provincial standard in writing.

Overall Achievement in Mathematics by Subgroup

Grade 3

		# =	Exempt	No Data	NEIS	NE 1	Level 1	Level 2	Level 3	Level 4
Gender	Boys	71 426	6%	<1%	6%	<1%	5%	26%	48%	10%
	Girls	67 705	4%	<1%	5%	<1%	5%	28%	49%	10%
Language	In ESL	7 625	20%	1%	5%	<1%	7%	28%	34%	6%
	All Other Students	132 100	4%	<1%	5%	<1%	4%	27%	49%	10%
Special Needs	Special Needs	23 158	22%	<1%	7%	1%	11%	34%	24%	2%
	All Other Students	116 567	1%	<1%	5%	<1%	3%	25%	53%	11%

Grade 6

		# =	Exempt	No Data	NEIS	NE 1	Level 1	Level 2	Level 3	Level 4
Gender	Boys	73 975	5%	<1%	6%	<1%	9%	28%	40%	12%
	Girls	70 309	3%	<1%	5%	<1%	8%	29%	42%	13%
Language	In ESL	5 208	23%	1%	6%	<1%	12%	23%	26%	9%
	All Other Students	140 143	3%	<1%	5%	<1%	8%	29%	41%	13%
Special Needs	Special Needs	23 322	20%	<1%	9%	1%	22%	31%	15%	1%
	All Other Students	122 029	1%	<1%	4%	<1%	6%	28%	46%	15%

Observations:

- In both Grade 3 and Grade 6, girls slightly outperformed boys in mathematics.
- Among ESL students, 40% of Grade 3 students and 35% of Grade 6 achieved the provincial standard in mathematics.
- Among students receiving special education support, 26% of Grade 3 students and 16% of Grade 6 students achieved the provincial standard in mathematics.

Overall Achievement in Grade 3 French Immersion (Method 1)

The following tables provide achievement information according to three options. For Grade 3 students in French Immersion classes, school boards must choose one of the following three options:

Option A: Students complete all components of the assessment (reading, writing and mathematics) in English; or

Option B: Students complete the reading and writing components in English and the mathematics component in a French translation or

Option C: Students complete only the mathematics component in a French translation. (These students do not complete the reading and writing components and will receive results only for mathematics.)

Option A: Reading, Writing and Mathematics in English (# = 3391)

	Exempt	No Data	NEIS	NE1	Level 1	Level 2	Level 3	Level 4
Reading	2%	<1%	7%	<1%	7%	25%	52%	8%
Writing	2%	<1%	3%	<1%	2%	29%	53%	11%
Mathematics	2%	<1%	5%	<1%	4%	25%	54%	9%

Option B: Reading and Writing in English; Mathematics in French (# = 3048)

	Exempt	No Data	NEIS	NE1	Level 1	Level 2	Level 3	Level 4
Reading	2%	<1%	9%	<1%	7%	25%	52%	5%
Writing	2%	<1%	4%	<1%	2%	32%	52%	8%
Mathematics	1%	<1%	8%	<1%	2%	22%	56%	11%

Option C: Mathematics in French (# = 2839)

	Exempt	No Data	NEIS	NE1	Level 1	Level 2	Level 3	Level 4
Mathematics	1%	<1%	5%	<1%	1%	17%	57%	19%

Observations:

- More than one-half of the French Immersion students achieved the provincial standard in reading, writing and mathematics.
- A greater percentage of French Immersion students achieved the provincial standard in reading when they wrote reading, writing and mathematics in English (60%) than those who wrote reading and writing in English and mathematics in French (57%).
- A greater percentage of French Immersion students achieved the provincial standard in writing when they wrote reading, writing and mathematics in English (64%) than those who wrote reading and writing in English and mathematics in French (60%).
- A greater percentage of French Immersion students achieved the provincial standard in mathematics when they wrote mathematics in French (74%) than those who wrote reading and writing in English and mathematics in French (67%) and those who wrote reading, writing and mathematics in English (63%).

Grade 3 Contextual Information from Questionnaires

The following section provides information from the Grade 3 student and teacher questionnaires.

Contextual Information from the Student Questionnaire

Response Rate

Province		
All Students	**Completed Questionnaires**	**Response Rate**
139 292	133 942	96%

Student Computer Use and Language Spoken at Home

	Province		
Percentage of students indicating that	**All (# = 133 942)**	**Girls (# = 65 458)**	**Boys (# = 68 303)**
at home, they speak mostly or only English.	82%	82%	82%
at home, other people speak mostly or only English to them.	79%	79%	79%
at home, there is a computer for them to use for school work.	53%	54%	51%

Note: All students were asked to complete the above questions. Subsets of students were asked to respond to the questions below.

Reading

Student Attitudes Toward Reading

	Province		
Percentage of students indicating that	**All (# = 88 726)**	**Girls (# = 43 419)**	**Boys (# = 45 192)**
they think they are good readers.	66%	68%	64%
they like to read.	72%	80%	65%

Observations:

- There is a significant difference between the percentages of girls and boys who like to read.
- An increase in the percentage of students who say they are good readers was found this year. (See the following table.)

I am a good reader.					
	1997–1998	**1998–1999**	**1999–2000**	**2000–2001**	**2001–2002**
Yes	55%	62%	63%	62%	66%

Student Reading Habits

Percentage of students indicating that	**Province**		
	All (# = 88 726)	**Girls (# = 43 419)**	**Boys (# = 45 192)**
they do reading that is not part of their work for school.	59%	64%	54%
they read by themselves at home.	65%	68%	61%
they read with others at home.	28%	28%	28%
they read by themselves at school.	75%	76%	75%
they talk to people about what they read.	30%	31%	29%

Observations:

- A significantly larger percentage of girls than boys indicated that they read material that is not part of their work in school and that they read by themselves at home.
- This year, a smaller percentage of students than in previous years reported that they talk to people about what they read.
- This year, a larger percentage of students than in previous years indicated that they do reading that is not part of their school work. (See the following tables.)

I talk to people about what I read.					
	1997–1998	**1998–1999**	**1999–2000**	**2000–2001**	**2001–2002**
Yes	not asked	34%	36%	36%	30%

I do reading that is not part of my school work.					
	1997–1998	**1998–1999**	**1999–2000**	**2000–2001**	**2001–2002**
Yes	56%	54%	55%	53%	59%

Student Reading Preferences

Percentage of students indicating that they like to read	Province		
	All (# = 88 726)	Girls (# = 43 419)	Boys (# = 45 192)
picture books.	39%	38%	40%
chapter books or novels.	73%	76%	70%
information books, Web sites or e-mail messages.	49%	48%	50%
poems.	45%	57%	34%
newspapers.	16%	13%	20%
magazines.	47%	48%	46%
comic books.	53%	40%	65%

Observations:

- There is a significant difference in the reading preferences of girls and boys.

Writing

Student Attitudes Toward Writing

Percentage of students indicating that	Province		
	All (# = 88 383)	Girls (# = 43 215)	Boys (# = 45 048)
they are good writers.	52%	58%	47%
they like to write.	61%	69%	54%

Observations:

- A significantly larger percentage of girls than boys say that they are good writers and that they like to write. This has remained a consistent trend through the years.

Student Writing Habits

Percentage of students indicating that	Province		
	All (# = 88 383)	Girls (# = 43 215)	Boys (# = 45 048)
they do writing that is not part of their work for school.	46%	53%	40%
they use a computer for writing.	27%	27%	27%
they talk to someone about their topic before they start writing.	20%	20%	21%
they take time to plan what they are going to write before they start writing.	70%	72%	68%
they read their work and correct their mistakes when they finish writing.	64%	68%	59%
they share a good copy with others.	52%	56%	49%

Observations:

- A significantly larger percentage of girls than boys report that they do writing that is not part of their school work; they read their work and correct their mistakes and they share a good copy with others.
- No large gender differences can be seen in students' use of a computer for writing or in their planning for writing.
- The trend over the years has remained fairly consistent, with the exception of the percentage of students reporting that they correct their mistakes. The percentage of students reporting this has dropped from 70% last year to 64% this year. (See the following table.)

I correct my mistakes.					
	1997–1998	1998–1999	1999–2000	2000–2001	2001–2002
Yes	65%	68%	72%	70%	64%

Student Writing Preferences

Percentage of students indicating that they like to write	Province		
	All (# = 88 383)	Girls (# = 43 215)	Boys (# = 45 048)
stories.	62%	67%	57%
reports.	35%	39%	32%
poems.	37%	49%	26%
journals or diaries.	48%	66%	31%
letters, cards or e-mail messages.	60%	67%	53%

Observations:

- There are some persistent gender differences in writing preferences. This has remained consistent through the years.

Mathematics

Student Attitudes Toward Mathematics

Percentage of students indicating that	Province		
	All (# = 88 019)	Girls (# = 42 974)	Boys (# = 44 921)
they think they are good at mathematics.	52%	44%	61%
they think mathematics is easy.	35%	27%	42%
they understand the mathematics that they do in school.	52%	46%	58%
they like mathematics.	62%	57%	66%

Observations:

- A little more than half the students say they are good at mathematics and that they understand the mathematics they do in school.
- A significantly larger percentage of boys than girls reported that they think they are good at mathematics; they think mathematics is easy; they understand the mathematics they do in school and they like mathematics.

Application of Mathematics

Percentage of students indicating that	Province		
	All (# = 88 019)	Girls (# = 42 974)	Boys (# = 44 921)
they do mathematics that is not part of their work for school.	40%	41%	39%
they use a calculator to learn mathematics at school.	18%	18%	19%
they use a computer to learn mathematics at school.	22%	22%	22%
they use mathematics to solve problems outside school.	34%	33%	35%
they talk to people about the mathematics that they do.	20%	21%	19%

Student Mathematics Preferences

Percentage of students indicating that they like	Province		
	All (# = 88 019)	Girls (# = 42 974)	Boys (# = 44 921)
doing number questions.	62%	59%	65%
measuring things.	54%	54%	55%
making patterns.	65%	73%	58%
building structures.	75%	69%	81%
drawing graphs, charts or diagrams.	47%	52%	42%
working with shapes.	58%	61%	54%
estimating or predicting results.	55%	53%	56%
solving mathematical problems.	51%	45%	56%

Observations:

- Gender differences can be seen in the types of mathematics students do: a larger percentage of boys than girls say they like doing number questions, building structures and solving mathematical problems. A larger percentage of girls than boys report that they like making patterns, drawing graphs, charts or diagrams and working with shapes.

Teaching Practices

Language

Teaching and Assessment Resources for Reading and Writing

Percentage of teachers indicating that	Province	
	Reading (# = 6800)	Writing (# = 6800)
the following resources are "accessible" or "very accessible" to them:		
classroom materials	92%	77%
library/resource centre language materials	82%	64%
computers	68%	67%
language-related computer software	57%	55%
board resource personnel	50%	49%
board language assessment materials	66%	61%
school/library language assessment materials	58%	53%
classroom resources for assessing language	76%	70%
the following resources are "very useful" or "indispensable" to them for teaching and assessing:		
the Ontario Curriculum Unit Planner	18%	18%
the four-level achievement chart in the curriculum	56%	55%
EQAO assessment materials	49%	48%
Ministry exemplars and rationales	51%	50%
assessment tools they have developed	80%	78%
assessment tools developed by teachers in their school	47%	45%
assessment tools developed by their boards	37%	35%
assessment tools developed by other boards	18%	17%
commercially published language assessment	36%	33%

Observations:

- Teachers indicate that they use a variety of assessment tools in reading and writing.

Teaching and Assessment Resources for Mathematics

Percentage of teachers indicating that	Province All (# = 6800)
the following resources are "accessible" or "very accessible" to them:	
mathematics textbooks and/or workbooks	90%
manipulatives	87%
library/resource centre mathematics materials	53%
calculators	80%
computers	70%
mathematics computer software	61%
board resource personnel	43%
teacher mathematics manuals	87%
board mathematics assessment materials	55%
school/library mathematics assessment materials	45%
classroom resources for assessing mathematics	78%
the following resources are "very useful" or "indispensable" to them:	
the Ontario Curriculum Unit Planner	21%
the four-level achievement chart in the mathematics curriculum	54%
EQAO mathematics assessment materials	52%
assessment tools they have developed	79%
assessment tools developed by teachers in their school	43%
assessment tools developed by their boards	29%
assessment tools developed by other boards	16%
commercially published mathematics assessment materials	43%

Observations:

- Teachers indicate that they use a variety of assessment tools in mathematics.

Percentage of teachers indicating that they	Province
	All (# = 6800)
have been teaching for **more than 2 years.**	84%
have taught in the primary grades for **more than two years.**	75%
have taught Grade 3 for **more than two years.**	55%

Observations:

- While 84% of the teachers have been teaching more than two years, only 55% have been teaching Grade 3 for more than two years.

Percentage of teachers indicating that they have had the following professional development:	Province		
	Reading (# = 6800)	**Writing (# = 6800)**	**Mathematics (# = 6800)**
school-related activities	78%	72%	64%
board-related activities	86%	78%	68%
ministry-related activities	29%	25%	22%
EQAO-related activities	55%	51%	51%
self-instruction/professional reading	77%	74%	68%
seminars, workshops and conferences	77%	69%	61%
graduate studies	12%	9%	6%

Observations:

- Grade 3 teachers are participating in board-related activities more than other types of professional development.

Additional Qualifications (AQ)

Percentage of teachers indicating that they have completed or are presently working toward the following:	Province		
	AQ Courses in Reading (# = 6800)	AQ Courses in Writing (# = 6800)	AQ Courses in Mathematics (# = 6800)
Part 1	13%	2%	4%
Part 2	4%	1%	1%
Specialist	5%	1%	1%
	Province		
	All (# = 6800)		
other AQ courses with a focus on reading and writing	37%		
other AQ courses with a focus on mathematics	17%		
other specialized training course in teaching reading, writing or mathematics	51%		

Grade 6 Contextual Information from Questionnaires

The following section provides information from the Grade 6 student and teacher questionnaires.

Contextual Information from the Student Questionnaire

Response Rate

Province		
All Students	**Completed Questionnaires**	**Response Rate**
145 351	139 327	96%

Student Computer Use and Language Spoken at Home

Percentage of students indicating that,	**Province**		
	All (# = 139 327)	**Girls (# = 68 194)**	**Boys (# = 70 942)**
at home, they speak mostly or only English.	84%	83%	83%
at home, other people speak mostly or only English to them.	80%	80%	81%
at home, there is a computer for them to use for school work.	83%	84%	82%

Observations:

- The majority of Grade 6 students report that they speak English at home and have access to a computer for school work.

Note: All students were asked to complete the above questions. Subsets of students were asked to respond to the questions below.

Reading

Student Attitudes Toward Reading

Percentage of students indicating that	**Province**		
	All (# = 86 147)	**Girls (# = 42 161)**	**Boys (# = 43 863)**
they think they are good readers.	63%	66%	60%
they like to read.	60%	68%	52%

Observations:

- A larger percentage of girls than boys indicate they like to read and think they are good readers.
- This has remained a consistent trend through the years.

Student Reading Habits

Percentage of students indicating that	Province		
	All (# = 86 147)	Girls (# = 42 161)	Boys (# = 43 863)
they do reading that is not part of their work for school.	56%	64%	50%
they read at home.	65%	72%	58%
they read with others at home.	15%	17%	14%
they read at school.	80%	82%	77%
they talk to people about what they read.	25%	27%	24%

Observations:

- A significantly larger percentage of girls than boys indicated that they read at home and that they do reading that is not part of their work for school.
- The trends through the years have remained fairly consistent, with the exception of the percentage of students indicating that they talk to people about what they read. This year the percentage of students reporting this has dropped from 31% last year to 25% this year. (See the following table.)

I talk to people about what I read.				
	1998–1999	1999–2000	2000–2001	2001–2002
Yes	29%	30%	31%	25%

Student Reading Preferences

Percentage of students indicating that they like to read	Province		
	All (# = 86 147)	Girls (# = 42 161)	Boys (# = 43 863)
chapter books or novels.	69%	73%	64%
information books, Web sites or e-mail messages.	63%	64%	61%
poems.	29%	40%	19%
newspapers.	19%	14%	24%
magazines.	61%	68%	54%
comic books.	45%	35%	55%

Observations:

- A larger percentage of girls than boys read chapter books or novels, poems and magazines. A larger percentage of boys than girls read newspapers and comic books.
- A smaller percentage of students this year indicated that they like to read chapter books or novels. (See the following table.)

I like to read chapter books or novels.				
	1998–1999	1999–2000	2000–2001	2001–2002
Yes	71%	73%	74%	69%

Writing

Student Attitudes Toward Writing

Percentage of students indicating that	Province		
	All (# = 85 679)	Girls (# = 41 966)	Boys (# = 43 593)
they think they are good writers	42%	47%	38%
they like to write	47%	56%	38%

Observations:

- A larger percentage of girls than boys say that they are good writers and that they like to write. This has remained a consistent trend over the years.

Student Writing Habits

Percentage of students indicating that	Province		
	All (# = 85 679)	Girls (# = 41 966)	Boys (# = 43 593)
they do writing that is not part of their work for school	38%	45%	31%
they use a computer for writing.	38%	37%	39%
they talk to someone about their topic before they start writing.	22%	21%	22%
they take time to plan what they are going to write before they start writing.	58%	59%	57%
they read their work and correct their mistakes when they finish writing.	61%	68%	55%
they share a good copy with others.	52%	57%	48%

Observations:

- A larger percentage of girls than boys report that they do writing that is not part of their school work; they read their work and correct their mistakes and they share a good copy with others.
- No significant gender differences can be seen in students' use of a computer for writing, planning for writing or talking to someone about their topic.
- The trends through the years have remained fairly consistent, with the exception of students' reporting that they correct their mistakes. The percentage of students reporting this has dropped from 67% last year to 61% this year. (See the following table.)

When I finish writing, I read my work and correct my mistakes.				
	1998–1999	1999–2000	2000–2001	2001–2002
Yes	65%	69%	67%	61%

Student Writing Preferences

Percentage of students indicating that they like to write	Province		
	All (# = 85 679)	Girls (# = 41 966)	Boys (# = 43 593)
stories.	46%	52%	40%
reports.	22%	25%	19%
poems.	35%	43%	27%
journals or diaries.	33%	54%	12%
letters, cards or e-mail messages.	67%	79%	56%

Observations:

- There are some persistent gender differences in writing preferences.
- A smaller percentage of students indicated that they like to write stories this year compared to previous years. Also, more students reported that they like to write poems this year than in past years. (See the following table.)

I like to write stories.				
	1998–1999	1999–2000	2000–2001	2001–2002
Yes	54%	55%	55%	46%

I like to write poems.				
	1998–1999	1999–2000	2000–2001	2001–2002
Yes	30%	30%	29%	35%

Mathematics

Student Attitudes Toward Mathematics

Percentage of students indicating that	Province		
	All (# = 85 385)	Girls (# = 41 863)	Boys (# = 43 396)
they think they are good at mathematics.	49%	39%	58%
they think mathematics is easy.	28%	21%	36%
they understand the mathematics that they do in school.	54%	48%	61%
they like mathematics.	50%	43%	56%

Observations:

- Almost half the students say they are good at mathematics; half say they like mathematics and a little more than half say they understand the mathematics they do in school.
- A significantly larger percentage of boys than girls reported that they are good at mathematics; they think mathematics is easy; they understand the mathematics they do in school and they like mathematics.
- These trends are consistent through the years.

Application of Mathematics

Percentage of students indicating that	Province		
	All (# = 85 385)	Girls (# = 41 863)	Boys (# = 43 396)
they do mathematics that is not part of their work for school.	31%	28%	34%
they use a calculator to do mathematics at school.	9%	9%	9%
they use a computer to do mathematics at school.	6%	6%	7%
they use mathematics to solve problems outside school.	41%	37%	45%
they talk to people about the mathematics that they do.	25%	26%	23%

Observations:

- A significantly larger percentage of boys than girls report using mathematics to solve problems outside school.
- A smaller percentage of students than in past years indicated that they do mathematics that is not part of their school work. (See the following table.)

I do mathematics that is not part of my work for school.				
	1998–1999	1999–2000	2000–2001	2001–2002
Yes	34%	37%	36%	31%

Student Mathematics Preferences

Percentage of students indicating that they like	Province		
	All (# = 85 385)	Girls (# = 41 863)	Boys (# = 43 396)
doing number questions.	56%	54%	58%
measuring things.	41%	36%	46%
making patterns.	54%	59%	49%
building structures.	68%	59%	78%
drawing graphs, charts or diagrams.	43%	47%	40%
working with shapes.	49%	49%	49%
estimating or predicting results.	38%	32%	43%
solving mathematical problems.	39%	33%	45%

Observations:

- A larger percentage of boys than girls say they like measuring things, doing number questions, building structures, estimating or predicting results and solving mathematical problems. A larger percentage of girls than boys report that they like making patterns and drawing graphs, charts or diagrams.
- This is a consistent trend through the years.

Teaching Practices

Language

Teaching and Assessment Resources for Reading and Writing

Percentage of teachers indicating that	Province	
	Reading (# = 6206)	Writing (# = 6206)
the following resources are "accessible" or "very accessible" to them:		
classroom materials	85%	77%
library/resource centre language materials	78%	64%
computers	63%	62%
language-related computer software	43%	46%
board resource personnel	46%	45%
board language assessment materials	61%	58%
school/library language assessment materials	53%	51%
classroom resources for assessing language	69%	67%
the following resources are "very useful" or "indispensable" to them for teaching and assessing:		
the Ontario Curriculum Unit Planner	16%	16%
the four-level achievement chart in the curriculum	53%	52%
EQAO assessment materials	45%	42%
Ministry exemplars and rationales	46%	45%
assessment tools they have developed	82%	79%
assessment tools developed by teachers in their school	50%	48%
assessment tools developed by their boards	35%	34%
assessment tools developed by other boards	20%	19%
commercially published language assessment materials	34%	33%

Observations:

- Teachers indicate that they use a variety of assessment tools in reading and writing.

Teaching and Assessment Resources for Mathematics

Percentage of teachers indicating that	Province All (# = 6130)
the following resources are "accessible" or "very accessible" to them:	
mathematics textbooks and/or workbooks	86%
manipulatives	76%
library/resource centre mathematics materials	48%
calculators	78%
computers	64%
mathematics computer software	53%
board resource personnel	44%
teacher mathematics manuals	81%
board mathematics assessment materials	56%
school/library mathematics assessment materials	44%
classroom resources for assessing mathematics	75%
the following resources are "very useful" or "indispensable" to them:	
the Ontario Curriculum Unit Planner	18%
the four-level achievement chart in the mathematics curriculum	50%
EQAO mathematics assessment materials	48%
assessment tools they have developed	78%
assessment tools developed by teachers in their school	46%
assessment tools developed by their boards	30%
assessment tools developed by other boards	18%
commercially published mathematics assessment materials	43%

Observations:

- Teachers indicate that they use a variety of assessment tools in mathematics.

Percentage of teachers indicating that they	Province
	All (# =7261)
have been teaching for **more than two years**	78%
have taught in the primary grades for **more than two years**	65%
have taught Grade 6 for **more than two years**	50%

Observations:

- While 78% of the teachers have been teaching for more than two years, only 50% have been teaching Grade 6 for more than two years.

Percentage of teachers indicating that they have had the following professional development:	Province		
	Reading (# = 7261)	**Writing (# = 7261)**	**Mathematics (# = 7261)**
school-related activities	69%	67%	58%
board-related activities	74%	70%	66%
ministry-related activities	22%	20%	19%
EQAO-related activities	48%	46%	46%
self instruction/professional reading	65%	63%	59%
seminars, workshops and conferences	63%	59%	55%
graduate studies	11%	9%	6%

Observations:

- Grade 6 teachers are participating in board-related activities more than other types of professional development.

Additional Qualifications (AQ)

Percentage of teachers indicating that they have completed or are presently working toward the following:	Province		
	AQ Courses in Reading (# = 7261)	AQ Courses in Writing (# = 7261)	AQ Courses in Mathematics (# = 7261)
Part 1	9%	2%	3%
Part 2	3%	<1%	1%
Specialist	4%	1%	1%

	Province
	All (# = 7261)
other AQ courses with a focus on reading and writing	27%
other AQ courses with a focus on mathematics	16%
other specialized training course in teaching reading, writing or mathematics	38%

Contextual Information from the Principal Questionnaire

Principals' Experience and Professional Development

Percentage of principals indicating that	Province All (#=3459)
they have been principal of their school for more than **five years.**	8%
in the past two years, they have had professional development in	
Reading and/or Writing Instruction	
graduate studies	3%
seminars, workshops and conferences	92%
self instruction/professional reading	68%
Reading and/or Writing Assessment and Evaluation	
graduate studies	3%
seminars, workshops and conferences	92%
self-instruction/professional reading	65%
Mathematics Instruction	
graduate studies	1%
seminars, workshops and conferences	55%
self-instruction/professional reading	58%
Mathematics Assessment and Evaluation	
graduate studies	1%
seminars, workshops and conferences	59%
self-instruction/professional reading	59%

Observations:

- Professional development through seminars, workshops and conferences is the most common form.

Recommendations

The following recommendations are based on

- the 2001–2002 overall and category-specific achievement results;
- the patterns and trends emerging from the overall results year to year;
- the data collected from the various questionnaires and
- suggestions from the trained teacher markers at the EQAO marking centres.

Planning for Improvement

EQAO recommends

- that the **Ministry of Education** use the Grade 3 and Grade 6 provincial assessment data accumulated over the past five years to stimulate literacy and numeracy especially in the Early Reading and Mathematics Initiatives, at the board, school and classroom levels.
- that the **Ontario College of Teachers** ensure that there is a balance of courses on core competencies through Professional Learning Program providers, to allow teachers across the province ample opportunities for professional development that focuses on the relationships among curriculum, teaching practices and assessment, essential to teaching and learning.
- that the **faculties of education** assist pre-service teachers in developing an awareness and understanding of the links among curriculum, teaching practices and assessment. Pre-service teachers must have exposure to a wide variety of assessment strategies, including large-scale, performance-based assessment.
- that **school boards** carefully review their improvement plans in relation to the board data that they have accumulated over the past five years from the Grade 3 and Grade 6 provincial assessments and revise their improvement plans, using the *EQAO Guide to School and Board Improvement Planning, April 2002*.
- that **school boards** examine the assessment results from all of their schools and identify those that are improving, in order to identify factors that relate to improvement and that they share such information to develop improvement strategies board-wide.
- that **school boards and schools** analyze disaggregated as well as aggregated achievement and contextual data in planning for improvement, and identify strategies that target areas and groups in need of additional support and improvement.
- that **school boards and schools,** in partnership with parents and school councils, incorporate the data collected and released as part of the Education Quality Indicators Program (EQUIP) into their reports, improvement plans and local profiles, in order to give parents and the public greater insight into the wide range of factors that contribute to achievement.

- that **principals,** with support from boards and the Ministry of Education, provide opportunities for all teachers to be involved in shared, collegial approaches both to the analysis of student achievement information and to the development and implementation of improvement strategies across all grades.
- that **principals,** with support from boards and the Ministry of Education, provide teachers with opportunities for professional development in assessment literacy and, in particular, in using assessment data along with best practices to develop strategies for improvement.
- that **principals and teachers,** with support from their school boards and in consultation with parents and school councils, analyze the data presented in this report and, through their school improvement plans, act on the subject-specific recommendations outlined below, in order to sustain improvement.

Reading

EQAO recommends

- that **teachers** use a variety of reading materials across genres and employ teaching strategies to motivate and interest both girls and boys in reading.
- that **teachers** have students focus on
  - understanding the different organizational and presentation forms (of non-fiction, for example) or understanding graphic organizers and how they connect information in boxes and sidebars to the information in the text.
  - identifying and differentiating characteristics of different forms of written material (for example, stories and poems).
- that **teachers** continue to read aloud to students throughout the elementary grades and emphasize to parents the importance of reading aloud to their children at home.

Suggestions from Teachers for Teachers

Grade 3 Reading: Reasoning

Teachers should work with students as they begin to make inferences.

The following are suggestions for teachers to help build this skill among their students:

- Draw attention to contextual clues in texts.
- Provide opportunities for students to justify their choices and explain their thinking when responding to questions.

Example: Levels 1–4 of It's a Frog's Life, question #1, show the progression of student ability to make inferences in order to explain why spring is one of the busiest seasons for the frog, across the four levels of achievement (Level 1 and Level 2 anchors; Level 3 and Level 4 anchors).

Grade 3 Reading: Organization of Ideas

Teachers should work with students on the skill of identifying the organizational elements of different texts and providing explanations of these elements.

The following are suggestions for teachers to help students build this skill:

- Share different genres of text with students.
- Discuss with students the organizational characteristics of the different genres of text.
- Ask students to explain in their own words the author's purpose in writing the text in the format he or she has chosen.

Example: Levels 1–4 of Reaching for the Sky, question #1, show the progression of students' understanding of how "In a Nutshell" is like a story and "How to Grow a Tree" is like an article, across the four levels of achievement (Level 1 and Level 2 anchors; Level 3 and Level 4 anchors).

Grade 6 Reading: Reasoning and Communication

Teachers should work with students on responding to prompts in their own words.

The following are suggestions for teachers to help students build this skill:

- Model the rephrasing of text in the students' own words instead of words copied from the text.
- Provide opportunities for students to incorporate supporting detail from the text in their own words, in their responses to questions.

Example: Levels 1–4 of Meet the Group of Seven, question #3, show the progression of students' ability to use their own words rather than copying directly from the text in responding to the question (Level 1 and Level 2 anchors; Level 3 and Level 4 anchors).

Grade 6 Reading: Language Conventions

Teachers should work with students on identifying punctuation and explaining how the punctuation helps them understand what they read.

The following are suggestions for teachers to help students build this skill:

- Have the students examine text with the punctuation removed, then share the text as written by the author. Have the students explain in their own words how the punctuation helps them better understand the text.

Example: Levels 1–4 of Meet the Group of Seven, question #7 show the progression of students' ability to explain how the comma and apostrophe function in the sentences (Level 1 and Level 2 anchors; Level 3 and Level 4 anchors).

Writing

EQAO recommends

- that **teachers** use a variety of strategies to interest both boys and girls in writing and to motivate them.
- that **teachers** help boys develop planning and organization strategies to allow them to write better.

Suggestions from Teachers for Teachers

Grade 3 Writing: Reasoning

Teachers should work with students on writing for different purposes and different audiences.

The following are suggestions for teachers to help their students build this skill:

- Read different genres of text to the students. Share chapter books, stories, narratives, letters, poems, journal entries, etc., on a regular basis. Keep track of the types of writing shared.
- Provide opportunities for students to create pieces of writing in different genres and for a variety of purposes.

Grade 3 Writing: Organization of Ideas

Teachers should work with students on showing evidence of a logical plan and/or focus.

The following are suggestions for teachers to help their students build this skill:

- Encourage students to use story planners.
- Model the use of story planners (one example is included in the Student Writing Booklet) to help students organize ideas and information using appropriate, logical connections.

Grade 6 Writing: Reasoning

Teachers should work with students on writing for different purposes and different audiences.

The following are suggestions for teachers to help their students build this skill:

- Read different genres of text to the students. Share narratives, editorials, letters, journal entries, poetry, etc., on a regular basis. Keep track of the types of writing shared.
- As you read different genres of writing, ask students to identify the genre and explain its characteristics. Build charts that describe the characteristics of different genres. Challenge students to create different pieces of writing using the characteristics charts as a guide. Make the writing authentic by connecting the writing to cross-curricular units being explored in the classroom.

Grade 6 Writing: Organization of Ideas

Teachers should work with students on using a logical sequence among sentences, paragraphs and in overall organization and structure.

The following are suggestions for teachers to help their students build this skill:

- Provide opportunities for students to use a story planner.
- Model the use of story planners (one example is included in the Student Writing Booklet) to help students sequence ideas and organize their writing into paragraphs.

Mathematics

EQAO recommends

- that **teachers** provide opportunities for students to write in all the content areas, including mathematics, to improve communication skills.
- that **teachers** help students to see the real world application of mathematical concepts.
- that **teachers** encourage girls to pursue the study of mathematics throughout their schooling.
- that **teachers** focus on problem solving by having students
  - identify the information necessary to solve the problem and
  - explain in detail the strategy they have used to solve the problem.

Suggestions from Teachers for Teachers

Grade 3 Mathematics (English and French Immersion): Communication

Teachers should work with students, on a regular basis, on oral and written communication that uses appropriate mathematical terminology.

The following are suggestions for teachers to help their students build this skill:

- Create a mathematics "word wall" in the classroom, to which new mathematical concepts and vocabulary can be added.
- Use mathematics journals in which students can be encouraged to explain their thinking processes, using numbers, pictures and/or words.
- Provide opportunities for students to describe their thinking processes and procedures when using a calculator and/or mathematics manipulatives.

Example: Levels 1–4 Investigation 1, question #4, show the progression of student ability to use precise mathematical terminology in explaining the measurement terms involved in understanding capacity (English: Level 1 and Level 2 anchors; Level 3 and Level 4 anchors) (French Immersion: Level 1 and Level 2 anchors; Level 3 and Level 4 anchors).

Grade 3 Mathematics (English and French Immersion): Problem Solving

Teachers should use a variety of open-ended problem-solving questions as a regular part of the mathematics program.

The following are further related suggestions:

- Provide opportunities for students to construct their solutions using prior mathematical knowledge and experience.
- Brainstorm and discuss strategies used to solve problems.
- Model different problem-solving strategies for students.
- Teach the steps of the problem-solving inquiry process found on page 74 of *The Ontario Curriculum, Grades 1–8: Mathematics*.
- Provide opportunities for students to find innovative ways of solving problems. It is important that students understand that there are several ways to approach and solve a problem.

Example: Levels 1–4 of Investigation 3, question #4, a data management and probability question, show the progression of student ability to solve problems, including the choice of strategies used to solve the problem, across the levels of achievement (Level 1 and Level 2 anchors; Level 3 and Level 4 anchors) (French Immersion: Level 1 and Level 2 anchors; Level 3 and Level 4 anchors).

Grade 6 Mathematics: Communication

Teachers should provide opportunities for students to communicate their skills and knowledge, incorporating mathematical terms and symbols.

- Model exemplary responses using numbers, pictures and/or words to communicate knowledge related to concepts, procedures and problem solving.

Example: Levels 1–4 of Investigation 2, question #3, a measurement question, show the progression of student ability to present a clear explanation of the relationship between the areas of a triangle and a rectangle, using mathematical terminology and symbols across levels of achievement (Level 1 and Level 2 anchors; Level 3 and Level 4 anchors).

Grade 6 Mathematics: Understanding of Concepts

Teachers should work with students on providing detailed explanations of concepts and mathematical ideas and relationships.

- Provide opportunities for students to explain their thinking related to a mathematical idea or relationship, through the use of math journals, "problem of the week" activities or math nights.

Example: Levels 1–4 of Investigation 1, question #5, a geometry and spatial sense question, show the progression of student ability to demonstrate an understanding of the concept of transformations and to provide explanations that incorporate mathematical ideas and relationships outlined in *The Ontario Curriculum* (Level 1 and Level 2 anchors; Level 3 and Level 4 anchors).

It's a Frog's Life	
FL-1 Reasoning	**Level 1**
Why is spring one of the busiest seasons for the frog? It's inportenat because they get to sleep all winter loog	
demonstrates very limited understanding of the activities in frog's life during spring by using a few simple ideas, responding with information inconsistently related to the text	

It's a Frog's Life	
FL-1 Reasoning	**Level 2**
Why is spring one of the busiest seasons for the frog? Spring is one of the busiest Seasons of all because frogs lay ther eggs.	
demonstrates limited understanding of the activities in frog's life during spring by using some simple ideas, responding with some information that is related to the text	

It's a Frog's Life

FL-1 Reasoning | **Level 3**

Why is spring one of the busiest seasons for the frog?

Spring is the busiest season for a frog because he has to get to the pond without getting killed and it's time for him to start eating again

demonstrates general understanding of the activities in frog's life during spring by using ideas of some complexity, beginning to make inferences and responding with information that is consistently related to the text

It's a Frog's Life

FL-1 Reasoning | **Level 4**

Why is spring one of the busiest seasons for the frog?

Spring is very busy for the frog because he needs to find food after hibernating. frogs need to get to their natral homes. It takes a long time! (it took frog 2 days!) The baby tadpoles are hacking. They need to be carful because heron's birds and newts love to eat them.

demonstrates thorough understanding of the activities in frog's life during spring by using ideas, making inferences and responding with information that is consistently related to the text

Reaching for the Sky

RS-1 Organization | **Level 1**

"In a Nutshell" is like a story and "How to Grow a Tree" is like an article.

a) **"In a Nutshell" -- How is it like a story?**

Yes I Think it is like a story because it trns into a tree.

b) **"How to Grow a Tree" — How is it like an article?**

It tell you how to Grow a tree.

demonstrates limited understanding of stories and articles as text forms by identifying a few simple characteristics and organizational elements

Reaching for the Sky

RS-1 Organization | **Level 2**

"In a Nutshell" is like a story and "How to Grow a Tree" is like an article.

a) **"In a Nutshell" — How is it like a story?**

because it tells you how it grows up to be a huge Oak tree.

b) **"How to Grow a Tree" — How is it like an article?**

It give you instructions how ta grow yourvery own oak tree.

demonstrates some understanding of stories and articles as text forms by identifying simple characteristics and organizational elements

Reaching for the Sky	
RS-1 Organization	**Level 3**

"In a Nutshell" is like a story and "How to Grow a Tree" is like an article.

a) **"In a Nutshell" -- How is it like a story?**

"In a Nutshell" is like a story because it has many butterfly pictures and it show whats going on. Also it has paragraphs and a beginning, middle, end

b) **"How to Grow a Tree" -- How is it like an article?**

"How to Grow a Tree" is like a article because it has experements, steps and pictures to show you what going on if you can't read.

demonstrates general understanding of stories and articles as text forms by identifying characteristics and organizational elements of some complexity

Reaching for the Sky	
RS-1 Organization	**Level 4**

"In a Nutshell" is like a story and "How to Grow a Tree" is like an article.

a) **"In a Nutshell" — How is it like a story?**

Well it has a problem, solution and setting "In a Nutshell" it has a beginning (Dave spotted on the great forest) a middle (The tree gave a home to all) and end (until the life of a acorn became apart of every thing)

b) **"How to Grow a Tree" — How is it like an article?**

It tells you information like how to start with a seed or seedling to grow a tree It tells you what words mean (glossary) and tells you how to take care of the plant that is a seed of seedling

demonstrates thorough understanding of stories and articles as text forms by identifying complex characteristics and organizational elements

Meet the Group of Seven	
GS-3 Reasoning	**Level 1**
The Group of Seven faced many challenges during their years together as painters Identify some of these challenges using information from the text to support your answer The challenges they had to deal with was the weather like the painting	
demonstrates very limited understanding of the challenges faced by the Group of Seven by citing very simple information that is inconsistently related to the text	

Meet the Group of Seven	
GS-3 Reasoning	**Level 2**
The Group of Seven faced many challenges during their years together as painters Identify some of these challenges using information from the text to support your answer there were Masquitos in the oil paint, and some times it would Rain So they Couldn't paint	
demonstrates limited understanding of the challenges faced by the Group of Seven by citing some simple information that is consistently related to the text	

Meet the Group of Seven	
GS-3 Reasoning	**Level 3**
The Group of Seven faced many challenges during their years together as painters Identify some of these challenges using information from the text to support your answer Some challenges would of been: ① How would they get to all the sceñes? They had a boxcar moved along the railroad so they could paint deep and every day. ② Another one is "s. At first people were not to fond of their paintings. It took years to become reconized.	
demonstrates general understanding of the challenges faced by the Group of Seven by citing information of some complexity that is consistently related to the text	

Meet the Group of Seven	
GS-3 Reasoning	**Level 4**
The Group of Seven faced many challenges during their years together as painters Identify some of these challenges using information from the text to support your answer The Group of Seven had problems of getting around to their paintings. They didn't have cars back then. So they attached a boxcar to a train and traveled in that. Another challenge is that sometimes people didn't like their paintings. Either it's ugly or it just isn't realistic. They also had trouble of getting their group set up. Some left the group and some joined in.	
demonstrates thorough understanding of the challenges faced by the Group of Seven by citing complex information that is consistently related to the text	

Meet the Group of Seven **GS-7 Conventions** | **Level 1**	**Meet the Group of Seven** **GS-7 Conventions** | **Level 2**
Explain how each of the following forms of punctuation helps you understand what you have read. **Comma** ...the Group held eight exhibitions at the Art Gallery of Toronto, now known as the Art Gallery of Ontario. It makes a break for you and a sentence. **Apostrophe** Fall was the Group's favourite time to paint Helps to tell you a letter is missing.	Explain how each of the following forms of punctuation helps you understand what you have read. **Comma** ...the Group held eight exhibitions at the Art Gallery of Toronto, now known as the Art Gallery of Ontario. It helps me understand because there is a pause in the sentence. **Apostrophe** Fall was the Group's favourite time to paint It helps me because the apostrophe is telling something all of the group likes.(belongs)
demonstrates very limited understanding of punctuation by identifying with limited accuracy the functions of the comma and the apostrophe and providing a limited explanation of how they help the reader understand the text	demonstrates limited understanding of punctuation by identifying with some accuracy the functions of the comma and the apostrophe and providing some explanation of how they help the reader understand the text

Meet the Group of Seven

GS-7 Conventions	**Level 3**

Explain how each of the following forms of punctuation helps you understand what you have read.

Comma

... the Group held eight exhibitions at the Art Gallery of Toronto, now known as the Art Gallery of Ontario.

The comma means to show an interrupted idea.

Apostrophe

Fall was the Group's favourite time to paint.

An apostrophe means to show belonging. The group had a favourite season.

demonstrates general understanding of punctuation by correctly identifying the functions of the comma and the apostrophe and explaining how they help the reader understand the text

Meet the Group of Seven

GS-7 Conventions	**Level 4**

Explain how each of the following forms of punctuation helps you understand what you have read.

Comma

... the Group held eight exhibitions at the Art Gallery of Toronto, now known as the Art Gallery of Ontario.

The comma helps me in this sentence because it tells me that there is a new idea, and it seperates the two.

Apostrophe

Fall was the Group's favourite time to paint.

This apostrophe helps me understand the sentence because it tells me that the word Groups is a possesit. Group's.

demonstrates thorough understanding of punctuation by correctly identifying the functions of the comma and the apostrophe and precisely explaining how they help the reader understand the text

Investigation 1 #4	
Measurement **Communication**	**Level 1**

Jack gets thirsty while planting the garden. He fills his cup with water.

Which unit is best for measuring how much water is in the cup?

- **Circle your answer.**

L m mg ml. (g)

Explain how you know this is the best unit for measuring water in the cup.

Because grams is the smallest amount there on the cup is smaller than all the rest.

provides an unclear and/or imprecise explanation of the unit that is best for measuring water in the cup, incorporating inappropriate mathematical terms

Investigation 1 #4	
Measurement **Communication**	**Level 2**

Jack gets thirsty while planting the garden. He fills his cup with water.

Which unit is best for measuring how much water is in the cup?

- **Circle your answer.**

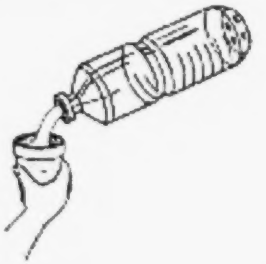
(L) m mg ml. g

Explain how you know this is the best unit for measuring water in the cup.

I new because letters is how you measure water or liked

provides a somewhat clear explanation of the unit that is best for measuring water in the cup, incorporating some appropriate mathematical terms and symbols

Investigation 1 #4		**Investigation 1 #4**	
Measurement **Communication**	**Level 3**	**Measurement** **Communication**	**Level 4**
Jack gets thirsty while planting the garden. He fills his cup with water. Which unit is best for measuring how much water is in the cup? • (Circle) your answer. L m mg (mL.) g Explain how you know this is the best unit for measuring water in the cup. mL is the best for measuring water because L would be to big so I used smaller L which are mL.		Jack gets thirsty while planting the garden. He fills his cup with water. Which unit is best for measuring how much water is in the cup? • (Circle) your answer. L m mg (mL.) g Explain how you know this is the best unit for measuring water in the cup. I know because when you measuring small containes of water you use milleters. So if you measures it by leters it to big and meters of for measuring distance and mg and g are for measuring weight.	
provides a generally clear explanation of the unit that is best for measuring water in the cup, incorporating appropriate mathematical terms and symbols		provides a clear and precise explanation of the unit that is best for measuring water in the cup, incorporating a range of appropriate mathematical terms and symbols	

Investigation n° 1	**Question 4**	**Investigation n° 1**	**Question 4**
Mesure **Communication**	**Niveau 1**	**Mesure** **Communication**	**Niveau 2**
Jack a soif pendant qu'il plante les graines. Il remplit sa tasse d'eau. Quelle unité est la meilleure pour mesurer la quantité d'eau dans la tasse? • (Encercle) ta réponse L m mg mL (g) Explique comment tu sais que c'est la meilleure unité pour mesurer l'eau dans la tasse. Car le tasse est moyen et tu mesure les chose moyen avec des g. 		Jack a soif pendant qu'il plante les graines. Il remplit sa tasse d'eau.  Quelle unité est la meilleure pour mesurer la quantité d'eau dans la tasse? • (Encercle) ta réponse. (L) m mg mL g Explique comment tu sais que c'est la meilleure unité pour mesurer l'eau dans la tasse. parce que qaund tu mesure l'eau tu mesure avec les L.	
donne une explication peu claire et/ou imprécise de la meilleure unité pour mesurer l'eau dans la tasse, en utilisant rarement la terminologie mathématique		donne une explication plus ou moins claire et précise de la meilleure unité pour mesurer l'eau dans la tasse, en utilisant parfois la terminologie et les symboles mathématiques appropriés	

Investigation n° 1	**Question 4**
Mesure **Communication**	**Niveau 3**

Jack a soif pendant qu'il plante les graines. Il remplit sa tasse d'eau.

Quelle unité est la meilleure pour mesurer la quantité d'eau dans la tasse

- (Encercle) ta réponse.

L m mg (mL) g

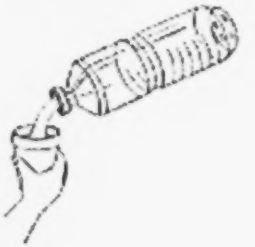
Explique comment tu sais que c'est la meilleure unité pour mesurer l'eau dans la tasse.

Je sais parce-que le ml meilleur d'eau et le ml est petit. Le L est trop grande pour mesurer ton tasse d'eau

donne une explication généralement claire et précise de la meilleure unité pour mesurer l'eau dans la tasse, en utilisant la terminologie et les symboles mathématiques appropriés

Investigation n° 1	**Question 4**
Mesure **Communication**	**Niveau 4**

Jack a soif pendant qu'il plante les graines. Il remplit sa tasse d'eau



Quelle unité est la meilleure pour mesurer la quantité d'eau dans la tasse?

- (Encercle) ta réponse.

L m mg (mL) g

Explique comment tu sais que c'est la meilleure unité pour mesurer l'eau dans la tasse.

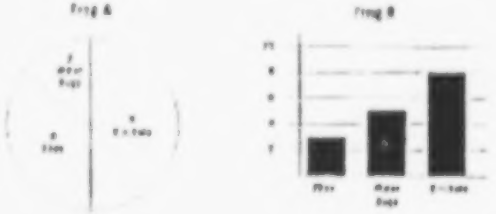
Parce que tu ne mesure jamais les liquide en m et si ne demande pas pour la masse alors sa me laisse avec L et mL. Le tasse est petit alors je choisis les mL parce que c'est plus petit que les L.

donne une explication claire et précise de la meilleure unité pour mesurer l'eau dans la tasse, en utilisant une gamme de terminologie et de symboles mathématiques appropriés

Investigation 3 #4	
Data Management and Probability **Problem Solving**	**Level 1**

Frog A ate insects each day

The graphs below show the number of insects eaten by Frog A and Frog B in 1 day.



Look at the circle graph and the bar graph.

- If the frogs ate the same food every day for 1 week, would more flies or more **water bugs** be eaten by the end of the week?

Explain your thinking

I think water bugs because it has more than flies

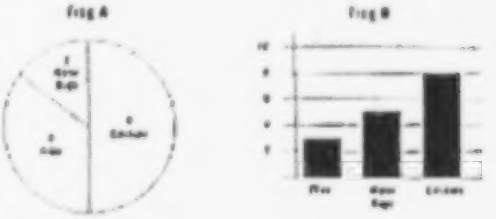
More water bugs would be eaten by the end of the week

demonstrates a very limited understanding of the data on the graphs by choosing and carrying out a simple or inappropriate strategy to read the graphs and determine the insects eaten by the end of the week, leading to an inaccurate solution

Investigation 3 #4	
Data Management and Probability **Problem Solving**	**Level 2**

Frogs ate insects each day

The graphs below show the number of insects eaten by Frog A and Frog B in 1 day.



Look at the circle graph and the bar graph.

- If the frogs ate the same food every day for 1 week, would more flies or more **water bugs** be eaten by the end of the week?

Explain your thinking

More flies would be eaten by the end of the week

demonstrates a limited understanding of the data on the graphs by choosing and carrying out a somewhat appropriate strategy to read the graphs and determine the insects eaten by the end of the week, leading to a partially accurate solution

Investigation 3 #4

Data Management and Probability
Problem Solving

Level 3

Frogs eat insects each day

The graphs below show the number of insects eaten by Frog A and Frog B in 1 day.

Look at the circle graph and the bar graph.

- If the frogs ate the same food every day for 1 week, would more flies or more water bugs be eaten by the end of the week?

Explain your thinking. They would be the same because 3+4=7 and 5+2=7

7 water bugs and 7 flies would be eaten by the end of the week.

demonstrates a general understanding of the data on the graphs by choosing and carrying out an appropriate strategy to read the graphs and determine the insects eaten by the end of the week, leading to a generally accurate solution

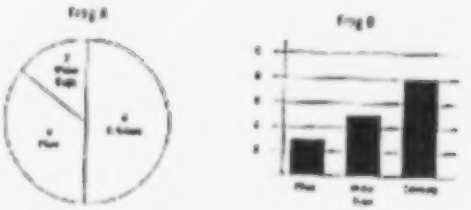
Investigation 3 #4

Data Management and Probability
Problem Solving

Level 4

Frogs eat insects each day

The graphs below show the number of insects eaten by Frog A and Frog B in 1 day.



Look at the circle graph and the bar graph.

- If the frogs ate the same food every day for 1 week, would more flies or more water bugs be eaten by the end of the week?

Explain your thinking. The water bugs and flies both are eaten the same amount because 49 flies are eaten and 49 water bugs are eaten. 4 flies 3 flies ×7 ×7 28 21 28+21=49 2 water bugs ×7 14 5 waterbugs ×7 14+35=49

Flies. Water bugs would be eaten by the end of the week

demonstrates an in-depth understanding of the data on the graphs by choosing and carrying out the most appropriate strategy to read the graphs and determine the insects eaten by the end of the week, leading to an accurate solution

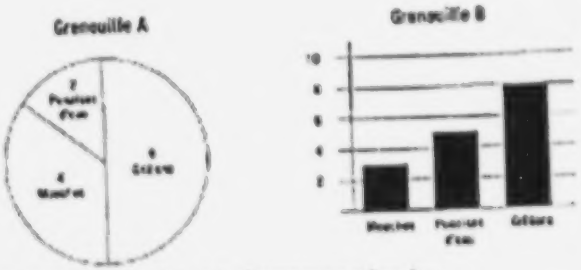
Investigation n° 3 — **Question 4**

Traitement des données et probabilité
Résolution de problèmes

Niveau 1

4. **Les grenouilles mangent des insectes chaque jour.**

Les diagrammes ci-dessous montrent le nombre d'insectes mangés par la grenouille A et la grenouille B dans 1 journée.



Observe le diagramme circulaire et le diagramme à bandes.

- **Si les grenouilles mangent la même nourriture chaque jour pendant 1 semaine, est-ce qu'il y aura plus de mouches ou plus de punaises d'eau mangées à la fin de la semaine?**

Explique ta réponse.

Il y a plus de criquets pour les grenouille et il va avoir beaucoup de criquets pour la semaine.

10 **seront mangées à la fin de la semaine**

démontre une compréhension très limitée des données sur les diagrammes en choisissant et en utilisant une stratégie inappropriée ou simple qui mène à une solution imprécise, pour lire les diagrammes et déterminer les insectes mangés à la fin de la semaine

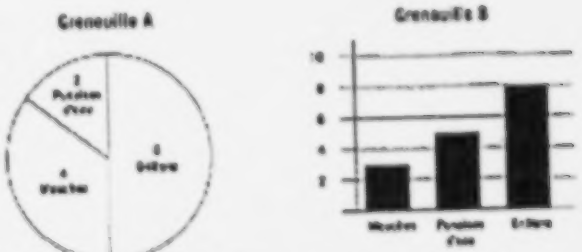
Investigation n° 3 — **Question 4**

Traitement des données et probabilité
Résolution de problèmes

Niveau 2

4. **Les grenouilles mangent des insectes chaque jour.**

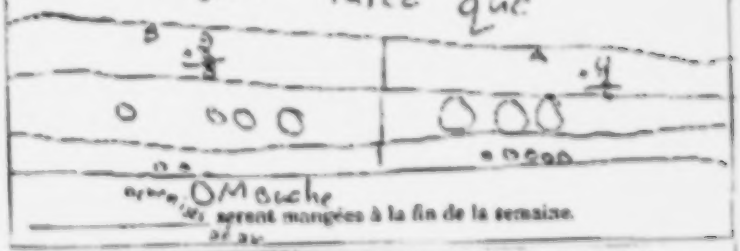
Les diagrammes ci-dessous montrent le nombre d'insectes mangés par la grenouille A et la grenouille B dans 1 journée.



Observe le diagramme circulaire et le diagramme à bandes.

- **Si les grenouilles mangent la même nourriture chaque jour pendant 1 semaine, est-ce qu'il y aura plus de mouches ou plus de punaises d'eau mangées à la fin de la semaine?**

Explique ta réponse. Grenouille B va avoir plus d'insect parce que



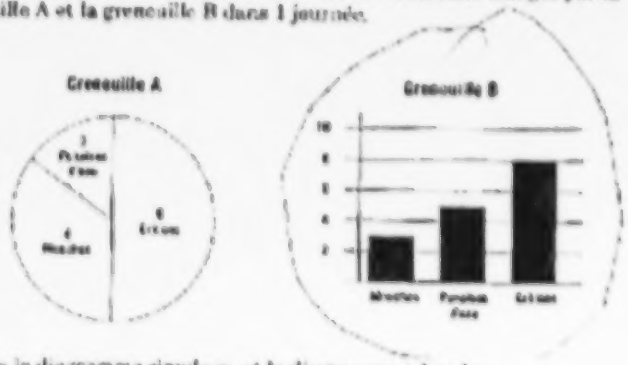
seront mangées à la fin de la semaine.

démontre une compréhension limitée des données sur les diagrammes en choisissant et en utilisant une stratégie plus ou moins appropriée qui mène à une solution partiellement précise, pour lire les diagrammes et déterminer les insectes mangés à la fin de la semaine

Investigation n° 3	**Question 4**
Traitement des données et probabilité **Résolution de problèmes**	**Niveau 3**

4. Les grenouilles mangent des insectes chaque jour.

Les diagrammes ci-dessous montrent le nombre d'insectes mangés par la grenouille A et la grenouille B dans 1 journée.



Observe le diagramme circulaire et le diagramme à bandes.

- Si les grenouilles mangent la même nourriture chaque jour pendant 1 semaine, est-ce qu'il y aura plus de **mouches** ou plus de **punaises d'eau** mangées à la fin de la semaine?

Explique ta réponse.

Il est le même

Mouches 4 + 3 = 7

Punaises d'eau 5 + 2 = 7

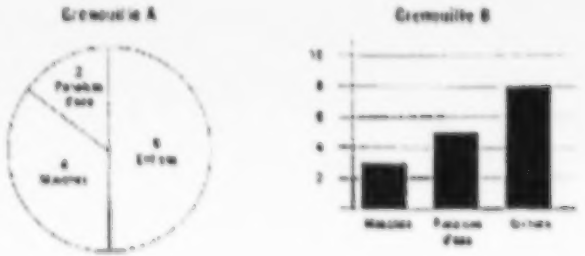
Les deux seront mangées à la fin de la semaine

démontre une compréhension générale des données sur les diagrammes en choisissant et en utilisant une stratégie appropriée qui mène à une solution généralement précise, pour lire les diagrammes et déterminer les insectes mangés à la fin de la semaine

Investigation n° 3	**Question 4**
Traitement des données et probabilité **Résolution de problèmes**	**Niveau 4**

4. Les grenouilles mangent des insectes chaque jour.

Les diagrammes ci-dessous montrent le nombre d'insectes mangés par la grenouille A et la grenouille B dans 1 journée.



Observe le diagramme circulaire et le diagramme à bandes.

- Si les grenouilles mangent la même nourriture chaque jour pendant 1 semaine, est-ce qu'il y aura plus de **mouches** ou plus de **punaises d'eau** mangées à la fin de la semaine?

Explique ta réponse.

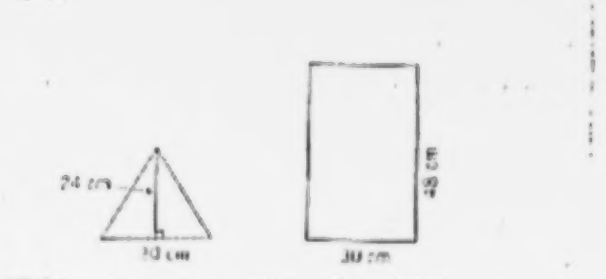
_____ seront mangées à la fin de la semaine

démontre une compréhension complète des données sur les diagrammes en choisissant et en utilisant la stratégie la plus appropriée qui mène à une solution précise, pour lire les diagrammes et déterminer les insectes mangés à la fin de la semaine

Investigation 2 #3

Measurement **Communication**	**Level 1**

3. There are road signs along the bike route.
Two of the signs look like this:



• Describe the relationship between the two signs.

Think about length of sides, perimeter and/or area, etc.

Explain your thinking.

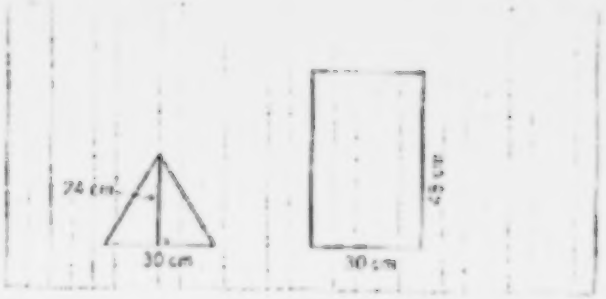
They both have multipals of 5.
They are both a shap.

provides a unclear and/or imprecise explanation of the relationship between the triangle and the rectangle, using few mathematical terms and symbols

Investigation 2 #3

Measurement **Communication**	**Level 2**

3 There are road signs along the bike route
Two of the signs look like this:



4 Describe the relationship between the two signs

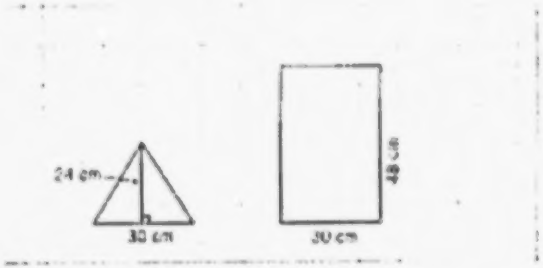
Think about length of sides, perimeter and/or area, etc.

Explain your thinking. I think the relationship is that the bottoms of both signs are both 30 cm and the rectangles lenght is double the size for different meanings and is 10° angle 3D dotted.

provides a partially clear and precise explanation of the relationship between the triangle and the rectangle, using some appropriate mathematical terms and symbols

Investigation 2 #3		**Investigation 2 #3**	
Measurement **Communication**	**Level 3**	**Measurement** **Communication**	**Level 4**

1. There are road signs along the bike route.
Two of the signs look like this:



- Describe the relationship between the two signs.

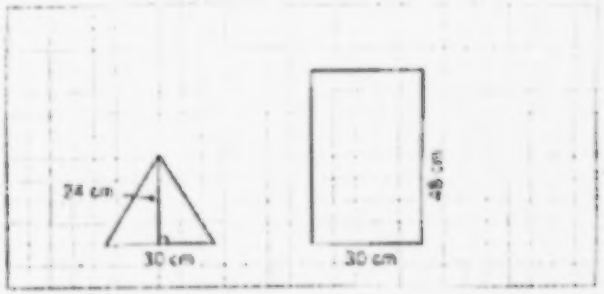
Think about length of sides, perimeter and area

Explain your thinking

- the base of the triangle is the same as the base of the rectangle
- triangle's area is 3600 m^2
- rectangle area is 1440 cm^2
- the triangle's total area is $\frac{1}{4}$ of the rectangle's

provides a generally clear and precise explanation of the relationship between the triangle and the rectangle,, using appropriate mathematical terms and symbols

1. There are road signs along the bike route.
Two of the signs look like this:



- Describe the relationship between the two signs.

Think about length of sides, perimeter and area

Explain your thinking

P: 8 x 3 = 30cm x 3 = 90cm

P: L+W x 2 = 30cm + 18cm x 2 = 96cm

A: b x h ÷ 2 = 30cm x 24cm ÷ 2 = 360 cm^2 A: LxW = 30cm x 48cm = 1440 cm^2

- the base of the triangle is the same as the rectangle's base
- the rectangle height is double the triangle's height
- rectangle's area is 4 times the triangle's area

provides a clear and precise explanation of the relationship between the triangle and the rectangle, using a range of appropriate mathematical terms and symbols

Investigation 1 #5

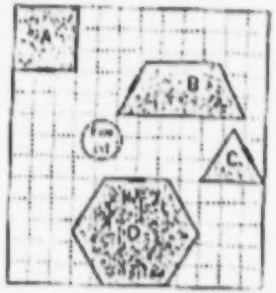
Geometry and Spatial Sense
Understanding Concepts

Level 1

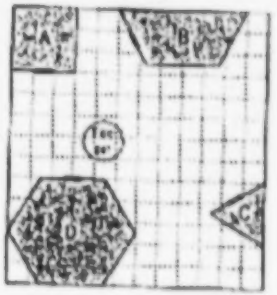
5. Grid 1 shows how the tents are first set up at the campsite.

Grid 2 shows how the tents are moved to even ground.

Grid 1 (Before)



Grid 2 (After)



- Explain how the tents are moved from Grid 1 to Grid 2.

Be sure to include the type of transformation, the number of units, the direction it moved.

Tent B:

they moved up.

Tent C:

they moved it down

Tent D

they moved it right

demonstrates a very limited understanding of the concepts of transformational geometry by providing partial explanations of the transformations of the tents at the campsite, incorporating few mathematical ideas and relationships

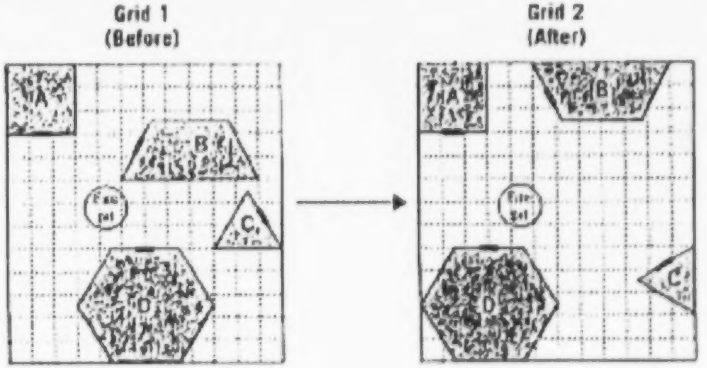
Investigation 1 #5

Geometry and Spatial Sense
Understanding Concepts

Level 2

5. Grid 1 shows how the tents are first set up at the campsite.

Grid 2 shows how the tents are moved to even ground.



• Explain how the tents are moved from Grid 1 to Grid 2.

Be sure to include the type of transformation, the number of units, the direction

Tent B
✓Get's moved by a flip

Tent C
✓
Gets moved by a turn

Tent D
Gets moved by a slyde

demonstrates a limited understanding of the concepts of transformational geometry by providing appropriate but incomplete explanations of the transformations of the tents at the campsite, incorporating some mathematical ideas and relationships

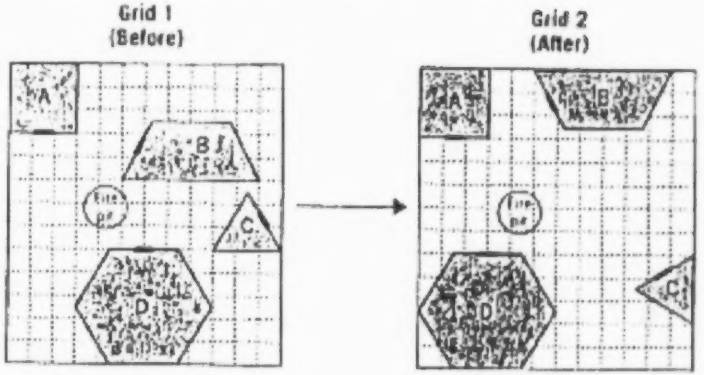
Investigation 1 #5

Geometry and Spatial Sense
Understanding Concepts

Level 3

5. Grid 1 shows how the tents are first set up at the campsite.

   Grid 2 shows how the tents are moved to even ground.



* Explain how the tents are moved from Grid 1 to Grid 2.

Be sure to include the type of transformation, the number of units, the direction

Tent B:

Tent B is flipped (reflected) upwards.

Tent C:

Tent C is rotated to the left.

Tent D:

Tent D is slid to the left 3 units.

demonstrates a general understanding of the concepts of transformational geometry by providing appropriate explanations of the transformations of the tents at the campsite, incorporating mathematical ideas and relationships

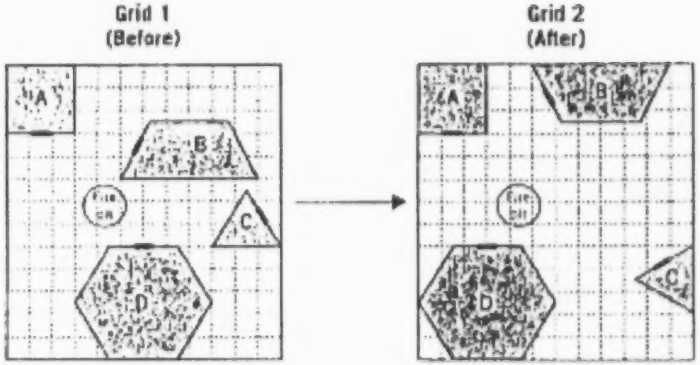
Investigation 1 #5

Geometry and Spatial Sense
Understanding Concepts

Level 4

5. Grid 1 shows how the tents are first set up at the campsite.

Grid 2 shows how the tents are moved to even ground.



- Explain how the tents are moved from Grid 1 to Grid 2.

Be sure to include
- the type of transformation
- the number of units
- the direction

Tent B

Tent B was reflected up.

Tent C

Tent C was rotated $\frac{1}{4}$ counterclockwise.

Tent D

Tent D was translated 3 units to the left

demonstrates an in-depth understanding of the concepts of transformational geometry by providing appropriate and complete explanations of the transformations of the tents at the campsite, incorporating a variety of mathematical ideas and relationships